

FIG. 1

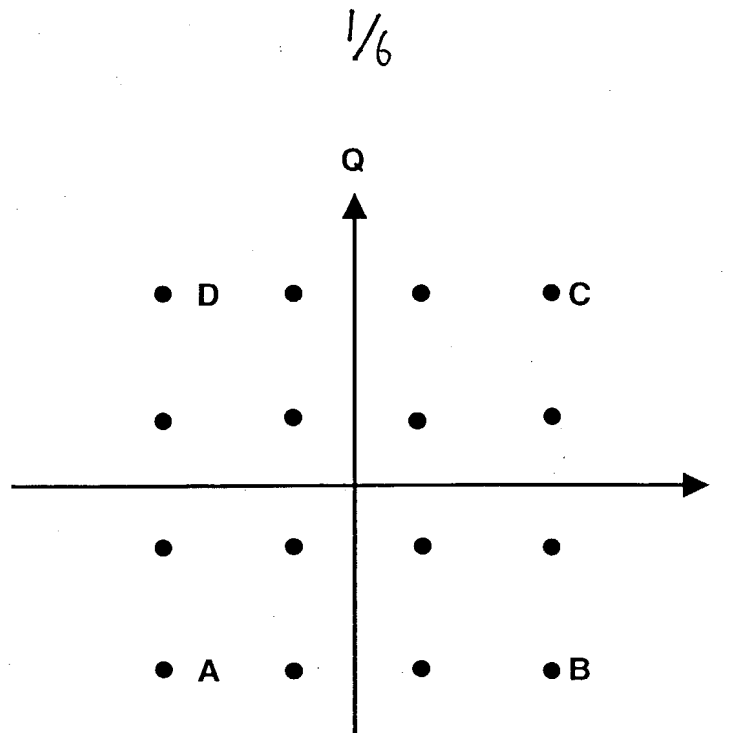
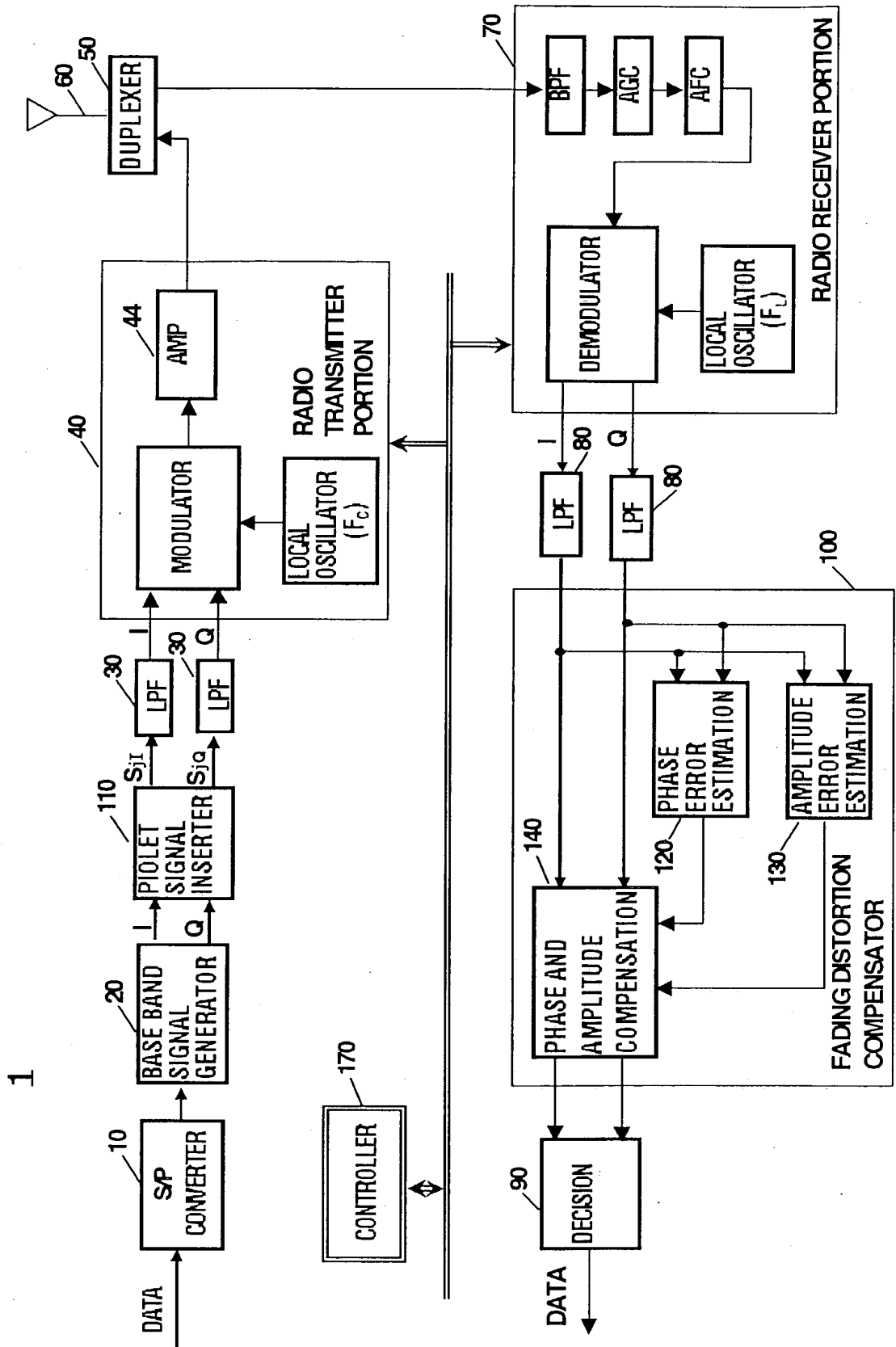


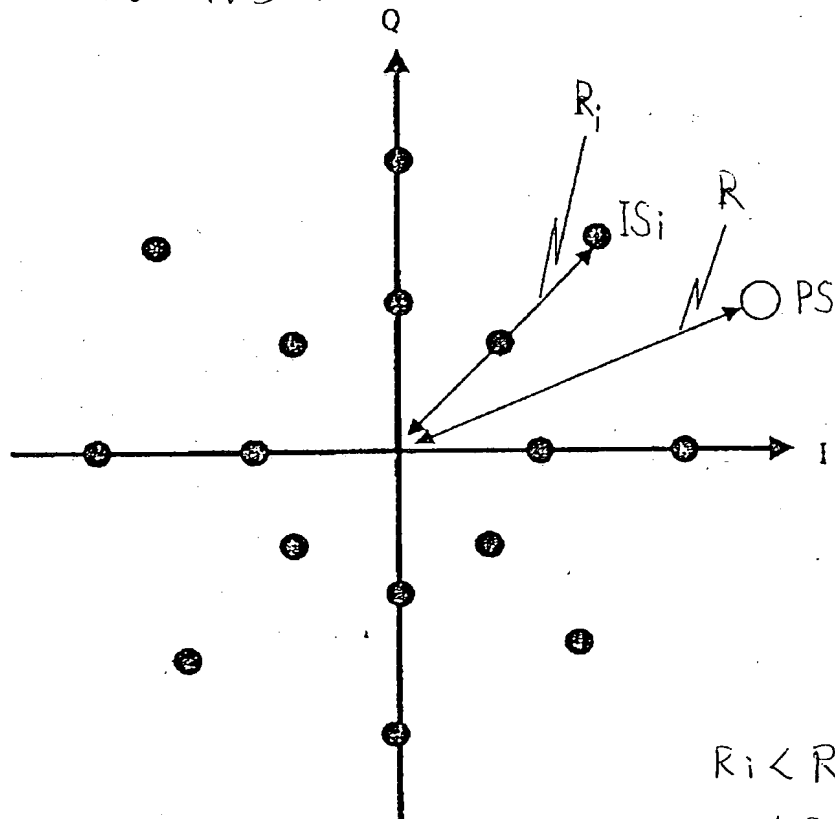
FIG. 2



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FIG. 3

16-APSK

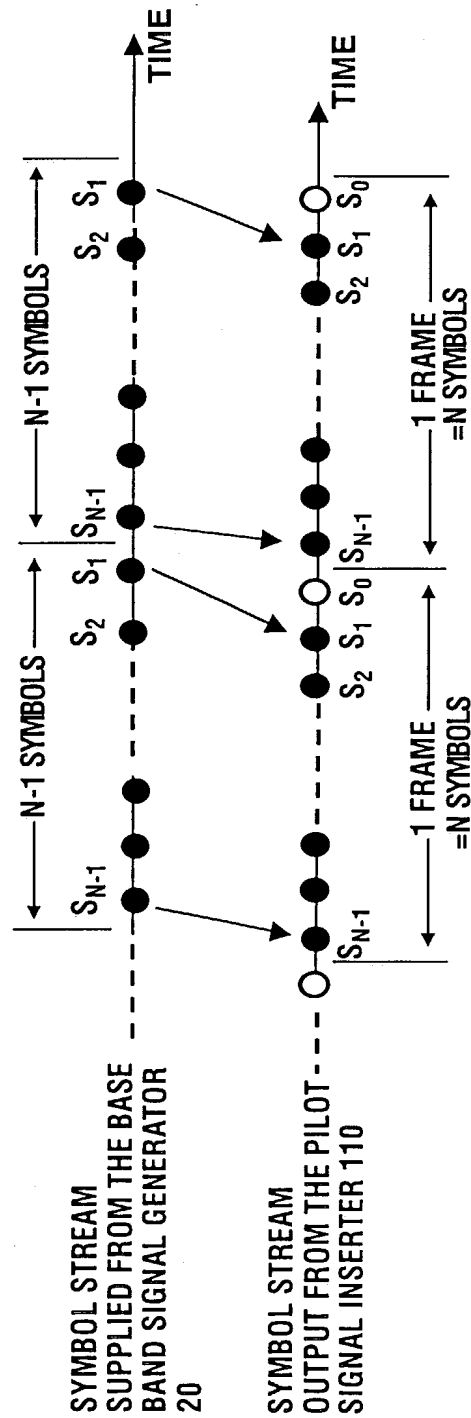


$$R_i < R$$
$$i = 1, 2, \dots, 16$$

FIG. 4

OPERATION OF THE PILOT SIGNAL INSERTER 110

- : INFORMATION SYMBOL (IS_i) $i = 1, 2, \dots, P$
- P: THE NUMBER OF POSSIBLE STATES
- : PLOIET (or FRAME) SYMBOL (PS)



$$S_j = \begin{cases} \text{PS} & \text{for } j = 0 \\ \text{IS}_i & \text{for } j = 1, 2, \dots, N-1 \end{cases}$$

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FIG. 5

2^m -QAM

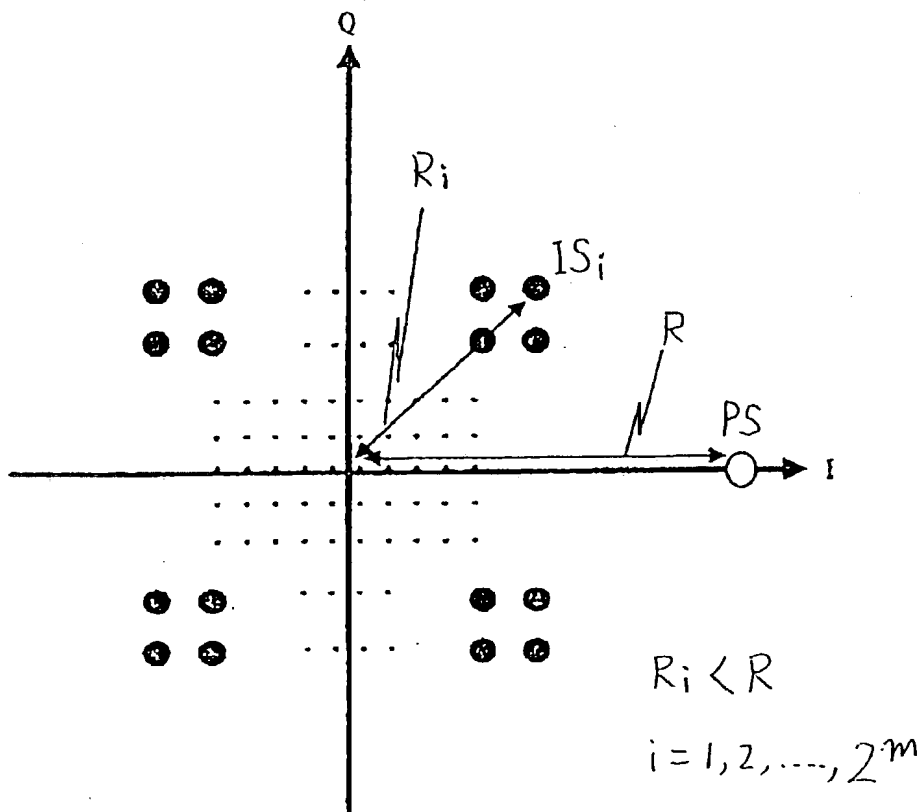
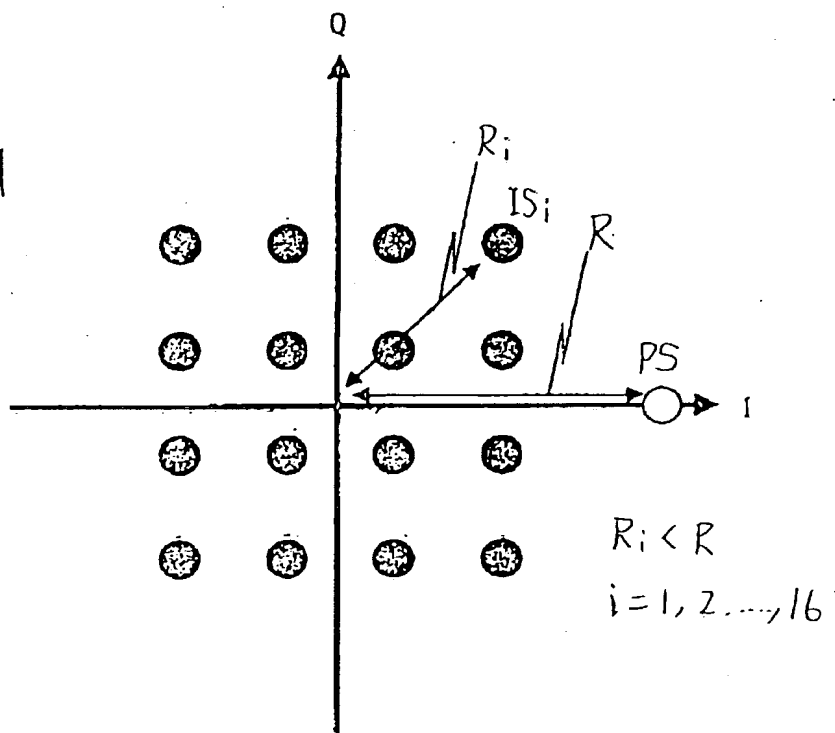


FIG. 6

16-QAM



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FIG. 7

8-PSK

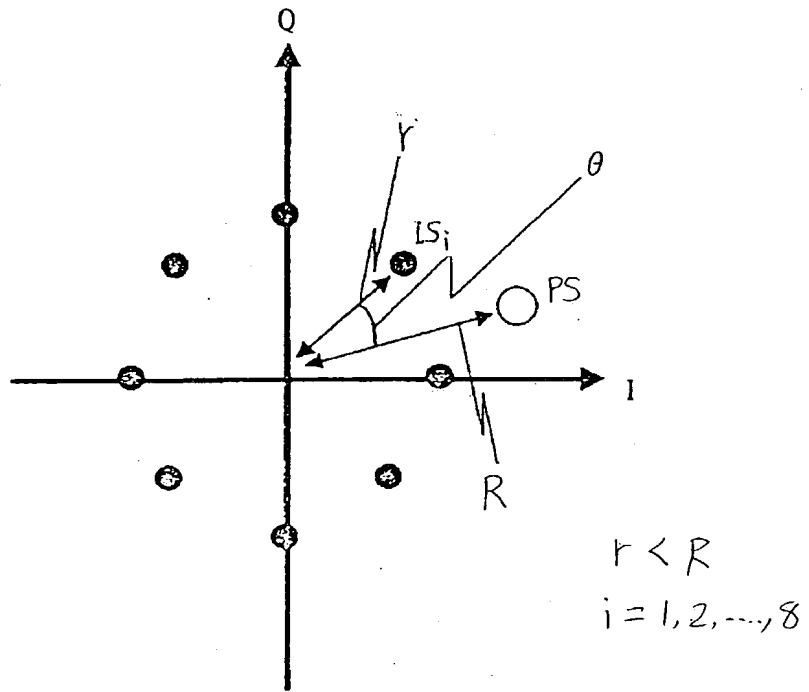


FIG. 8

QPSK

